

## TORNADO AT LITTLE ROCK, ARKANSAS, MAY 14, 1923.

By H. S. COLE, Meteorologist.

Weather Bureau Office, Little Rock, Ark., May 20, 1923.]

A tornado occurred in Pulaski Heights, the western section of Little Rock, between 7:30 p.m. and 8 p.m., May 14. The first trees were uprooted just west of the convent, indicating that the storm originated in that vicinity. It moved northeastward and increased rapidly in intensity as it moved forward. The path of the tornado was about 900 feet wide for the first quarter of a mile, after which it increased in width to about 2,800 feet for the next half mile, then narrowed down to about 1,400 feet and continued about that width to the northern limits of the Country Club grounds where it dissipated. The entire distance traveled was nearly 2 miles.

There were two paths in which all trees were down, indicating that there were two centers moving nearly parallel in the widest portion of the path, the two coming together just beyond the Country Club station or following closely, one after the other. Persons located between the two paths report a severe wind, then a lull for a minute or two and a second storm. The storm moved very slowly, some estimating that it took 15 minutes to pass, but there were no lights and the time was probably overestimated.

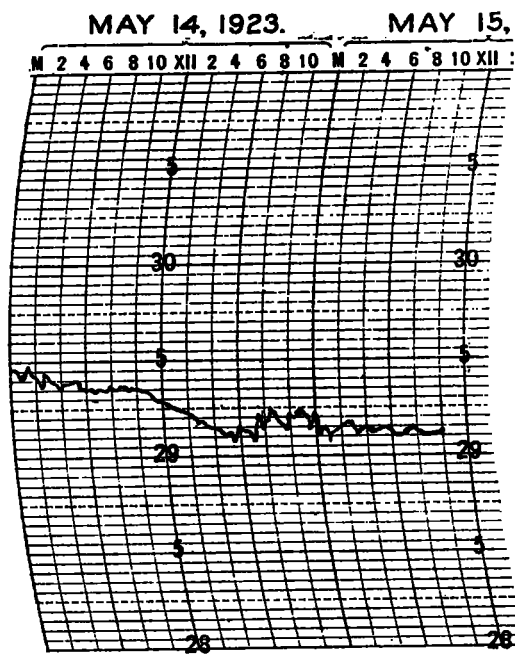


FIG. 1.—Barometric pressure at Little Rock, Ark., May 14, 1923.

The number of trees blown down was unusually large, as there was some heavy pine timber in the path of the storm. Nearly all of the trees were blown to the northeast, and most of them were uprooted instead of broken off. In the two paths of greatest destruction nearly all trees were down; elsewhere a portion of them standing. Three buildings were practically destroyed, one of them a school house, a few were badly damaged, and many slightly damaged. The property damage, aside from the trees that were blown down, was estimated by the Arkansas Democrat at \$40,000. Telephone service was cut off, lighting lines were out of commission, and it was 24 hours before car service could be restored. Several instances of houses being nearly destroyed but leaving the persons within uninjured were reported. It is evident that there were no such extremely high wind

velocities as are usually reported in such storms, the winds being only high enough to do the damage mentioned.

The tornado occurred about 300 miles east of the center of a crescent-shaped low, extending from Springfield, Mo., to Fort Worth, Tex., the lowest readings reported to this office being 29.38 inches. An unusually heavy thunderstorm was in progress in Little Rock and vicinity at the time, lasting from 7 p. m. until a little after midnight. Rainfall continued at an excessive rate for two hours and five minutes, 3.21 inches occurring from 7:26 p. m. to 9:31 p. m. Heavy rainfall occurred in all portions of the State during the afternoon and night, the heaviest reported being 9 inches at Hot Springs National Park. Although the electric lights were cut off at the home of the writer little inconvenience was experienced in going about the house as the flashes of lightning were almost continuous. It was not possible to see that a tornado was occurring less than 3 miles distant, but it was plainly evident that the most intense portion of the storm was in the locality in which the tornado occurred.

## SMALL TORNADO AT THRALL, TEXAS, MAY 14, 1923.

By W. D. FULLER, Meteorologist.

[Weather Bureau Office, Taylor, Tex., May 16, 1923.]

On Monday night, May 14, 1923, a small tornado occurred at Thrall, Tex., a town about 7 miles east of Taylor. On account of the darkness no pendent cloud was observed, but the effects of the disturbance showed plainly that it was tornadic in character.

The storm traveled from southwest to northeast over the short course that could be traced, but owing to the fact that the immediate section where it occurred is sparsely settled, and that crops are not far enough advanced to show the track very distinctly, extensive observations were not possible.

A house about 14 by 30 was picked up, lifted over a fence without touching the latter, and deposited about 50 feet to the northeast. In its original position the house faced south, but when deposited it faced north. It was wrecked when it fell to the ground. A barn of larger dimension was wrecked after being moved about 10 feet. The debris in each case showed clearly a rotary motion of the storm counterclockwise. A few trees were twisted off at the roots. As far as can be learned, the tornado touched only at this point in its course.

Thunderstorm conditions prevailed at Taylor during this disturbance, but nothing unusual was observed here. The barograph trace showed about a tenth of an inch rise during the three hours from 5 p. m. to 8 p. m., was steady for about two hours, then showed a quick rise of nearly a tenth of an inch in about 20 minutes at the time of the tornado 7 miles away, which was between 9:30 p. m. and 10 p. m. The monetary damage was not large, probably not exceeding \$600.

## TORRENTIAL RAINS IN EXTREME SOUTHEASTERN TEXAS.

ERNEST CARSON, Observer.

[Weather Bureau Office, Port Arthur, Tex., June 15, 1923.]

On Friday, May 18, 1923, during a severe thunderstorm, torrential rains fell over the extreme southeastern portion of Texas, Beaumont and Port Arthur reporting the greatest amounts, 13.54 inches and 5.38 inches, respectively.

The rain at Beaumont began shortly after midnight of the 17th and ended about noon of the 18th. A stick measurement at 7 a. m. showed 0.78 inch; the rain continued falling lightly until 7:30 a. m., being shortly before this time when the first thunder was heard; then the torrential rain began and continued until 10 a. m. It was stated that practically the entire amount of rain fell during the two and one-half hour period from 7:30 a. m. to 10 a. m.

Streets were flooded to a depth of 1 to 5 feet, the water backing into businesshouses and causing considerable damage to the contents. No automatic gauge record was obtainable at Beaumont, but an idea of the volume of water that fell can be had from a description of the topography. It is situated on a level country on the west bank of the Neches River, with a natural slope toward the river. Although with the natural drainage and the sewerage system the city was flooded, as stated above and shown by Figure 1, which was taken on Pearl Street about 300 yards from the river.

Street car and interurban traffic were completely demoralized for five hours, and where streets were paved with wooden blocks swelling took place, and the blocks buckled and floated away. During the storm lightning struck several buildings in the city and an oil-storage tank at a near-by refinery, burning all the oil in the tank. Total damage was estimated at \$500,000, practically all from water.

One death was reported. A negro riding horseback was drowned when the horse fell with him in a large drainage ditch near El Vista, Tex., which is a few miles south of Beaumont.

At Port Arthur a light rain fell from 4:28 a. m. to 6:57 a. m.; first thunder was heard in the west at 5:50 a. m. Rain began falling again at 7:40 a. m. and ended at 1:14 p. m.; during this time 5.37 inches was recorded. There were two excessive periods, the first from 9:20 a. m. to 10:24 a. m., 3.25 inches falling, and the second from 11:02 a. m. to 11:41 a. m., 1.86 inches falling. It is evident from the changes in wind direction that two thunderstorms passed over the station in rapid succession. Rainfall was heaviest during the first storm; accumulated depths during excessive rate were 1.27 inches in 15 minutes, 2.11 inches in 30 minutes, and 3.11 inches in 1 hour.

No damage occurred in Port Arthur; the water did not obtain any great depths and all disappeared soon after the storm passed, except in the western part of the city, where it was left standing for several hours, due to an accident to one of the drainage pumps.

#### THE CLONMEL TORNADO OF MAY 22, 1923.

By JAMES W. ARNOLD, Observer.

[Weather Bureau Office, Wichita, Kans., June 4, 1923.]

On the evening of May 22, 1923, a tornado occurred in the vicinity of the Wichita station, injuring 5 people, causing property damage in excess of \$100,000, and crop damage which can not be estimated at the present time.

The first evidence of the tornado was near Viola, Kans., approximately 23 miles southwest of the Wichita station. Assuming a north-northeast to northeast direction it struck again at a point about 4 miles southwest of Clonmel, continuing to a point about 4 miles northeast of the latter place. Here it lifted and no further evidence of damage to buildings was found until the vicinity of Twenty-ninth Street and Arkansas and Lawrence Avenues, North Wichita, was reached, where it dipped down to earth again, causing injury to people and property damage.

The total length of its path was about 30 miles and its width 1 mile. The length of the path of greatest destruction in the Clonmel vicinity was 7 to 8 miles, the center of the path passing through the center of the village, while in North Wichita the length was about 1 mile.

A distinct funnel-shaped cloud was seen by residents of Clonmel and the direction of the prostrated trees indicates that the storm was of tornadic character. No one in the vicinity of North Wichita saw a funnel-shaped cloud, but two persons who have seen other tornadoes said they heard the distinct roar which accompanies them.

The rate of travel was slightly less than 60 miles per hour. A clock at Clonmel, damaged by the storm, stopped at 8:55 p. m., while one at Wichita, also broken by the storm, stopped at 9:30 p. m. The distance traversed in 35 minutes being about 30 miles.

In the Clonmel section about 12 farmsteads were damaged and practically every building in the village was damaged. The total property loss was about \$50,000 and crop damage can not be estimated, although about 10 per cent of the corn and 60 per cent of the kaffir and feed crops may have to be replanted. The crop damage was not confined to sections where the tornado did property damage, but all along the 30 mile path crops were harmed considerably. In many places in the near vicinity of Wichita the apple crop will be an entire loss, while plums and other fruits suffered. Gardens along the path were ruined by the hail and rain which accompanied the tornado. During the two hours from 9 p. m. to 11 p. m. 0.75 inch of rain fell at the Wichita station, accompanied by two periods in which hail fell. The property damage in Wichita was estimated to be about \$50,000.

The barograph trace at the Wichita station shows no fall in pressure at the time of the passing of the tornado, but instead shows a sudden rise of 0.10 of an inch. It is thought this is due to the fact that the tornado did not dip to the earth until it had passed by the station.

#### VEERING OR BACKING WINDS AS INDICATING THE WEATHER.

E. P. JONES, Meteorologist.

[Weather Bureau Office, Portland, Me., May 3, 1923.]

In order to verify the general belief that when precipitation along the Maine coast ceases with veering winds a longer period of fair weather follows than when the ending of precipitation is attended by backing winds, a careful study of wind direction in relation to precipitation from November 1, 1922, to March 30, 1923, resulted in proof that the validity of this assumption is not sustained by fact, as may be seen from the accompanying table.

Rain or snow was more often followed by backing winds, while the period of fair weather before the next following precipitation was somewhat longer after backing winds.

	Number of times wind—		Average period before next following precipitation.	
	Veered.	Backed.	After veering.	After backing.
November.....	1	3	114 hours or 4.8 days.....	96 hours or 4 days.
December.....	3	9	30 hours or 1.2 days.....	60 hours or 2.5 days.
January.....	5	5	30 hours or 1.2 days.....	28 hours or 2.8 days.
February.....	3	5	48 hours or 2 days.....	81 hours or 3.4 days.
March.....	8	6	52 hours or 2.2 days.....	42 hours or 1.8 days.
Total.....	20	28		
Average.....	4	6	55 hours or 2.5 days.....	60 hours or 2.9 days.



FIG. 1.—Pearl Street (looking north), Beaumont, Tex., May 18, 1923.